

REMARKS

This Amendment is responsive to the July 15, 2010 Office Action. Claim 1 has been amended. Support for the amendment to claim 1 may be found, for example, in Fig. 4 and the specification of the present application. Claims 1-4, 6, and 7 are pending in this application.

Rejection Under 35 U.S.C. § 103(a)

Claims 1, 2, 4, 6, and 7 stand rejected under 35 U.S.C. § 103(a) for obviousness over DE 100 57 041 to Kasselmann ("Kasselmann") in view of United States Patent No. 4,509,889 to Skogberg et al. ("Skogberg '889") or United States Patent No. 4,634,317 to Skogberg et al. ("Skogberg '317"). Claim 3 stands rejected under 35 U.S.C. § 103(a) for obviousness over Kasselmann in view of Skogberg '889 or Skogberg '317 and in further view of JP 2003-206698. In view of the foregoing amendments and the following remarks, reconsideration of these rejections is respectfully requested.

Amended independent claim 1 recites, *inter alia*:

...whereby the bearing plate is held in contact with a step between the projecting part and the bearing-plate-holding part, the projecting part and the bearing-plate-holding part having a single, one-piece unitary construction, the projecting part being fixed relative to the bearing-plate-holding part, whereby the bearing plate locates on an edge of a rockbolt-setting hole drilled in a bedrock or ground, and the bearing-plate-holding part extends through the aperture of the bearing plate into the rockbolt-setting hole, the projecting part and the bearing-plate-holding part being substantially rigid, the rockbolt main body configured to hydraulically expand relative to the projecting part and the bearing-plate-holding part to secure the rockbolt main body within the rockbolt-setting hole.

Kasselmann, Skogberg '889, and Skogberg '317 fail to teach or suggest a projecting part and a bearing-plate-holding part being substantially rigid and where the rockbolt main body is configured to hydraulically expand relative to the projecting part and the bearing-plate-holding part to secure the rockbolt main body within the rockbolt-setting hole as recited in amended independent claim 1.

Kasselman discloses a rock bolt having a case (17), an anchor outer pipe (10), and an anchor inner pipe (12), where a diameter of the anchor outer pipe (10) is smaller than an inner diameter of a hole (20) of a dome plate (19) (see Fig. 1). The Examiner at page 5 of the Office Action relies upon the outer pipe (10) of Kasselman to disclose the bearing-plate-holding part as recited in independent claim 1. The anchor outer pipe (10) of Kasselman has a slit (11) extending in a longitudinal direction and forming a C-type cross-section. The anchor outer pipe (10) expands together with the overlapped anchor inner pipe (12) and is not substantially rigid. Accordingly, the outer pipe (10) of Kasselman fails to teach or suggest a projecting part and a bearing-plate-holding part being substantially rigid where the rockbolt main body is configured to hydraulically expand relative to the projecting part and the bearing-plate-holding part to secure the rockbolt main body within the rockbolt-setting hole as in the claimed invention.

Furthermore, the anchor outer pipe (10) of Kasselman extends into a whole length of a bore hole (8). In order to increase the friction force, a coating (32) is provided onto a surface of the anchor outer pipe (10) (see Column 3, lines 53-61; claim 9; and Fig. 1 of Kasselman). In contrast, in the present invention as shown in Fig. 4, for example, a bearing-plate-holding part (12) is inserted into the bore hole a comparatively short distance, and only the rock bolt (1) is inserted into a full length of the hole. Therefore, once the rockbolt (1) expands, a firm friction force secures the bolt (1) against the inner wall of the bore hole. As previously explained during the prosecution of this application, the rockbolt of the claimed invention includes a pressurized-fluid-introducing sleeve (10) of a larger diameter and the bearing-plate-holding part (12) with a smaller diameter being rigid and having a single, one-piece unitary construction. The projecting part and the bearing-plate-holding part defining a passageway and a portion of the expansive groove of the rockbolt main body (1) is positioned within the passageway so as to prevent breakdown of a welded part due to a heavy deformation of the main body. The small-diameter part is inserted into a bearing plate and placed in a rockbolt-setting hole of bedrock or ground. The large-diameter part only projects outwards from a sprayed concrete layer, so as to suppress a projection height.

In contrast, as discussed above, the anchor outer pipe (10) of Kasselman has a slit (11) extending in a longitudinal direction forming a C-type cross-section and expands

together with the overlapped anchor inner pipe (12). Further, as shown in Figs. 1-5, the slit (11) begins from just below the dome plate (19), and, in this configuration, expansion of the main body cannot be suppressed. Therefore, in order to suppress the expansion at an upper part from the dome plate (19), a longer projected sleeve (17) is required. Accordingly, the device of Kasselman fails to address the problem of the projection height of the rock bolt.

Skogberg '889 and Skogberg '317 fail to overcome the deficiencies of Kasselman discussed above. Skogberg '889 and Skogberg '317 disclose a threaded sleeve (19) and a nut (42) as shown in Fig. 14. As with Kasselman, Skogberg '889 and Skogberg '317 also fail to solve the problem addressed by the claimed invention. In particular, the claimed invention allows for a decrease in the projection height of the bolt from the bearing plate so that a lining concrete layer is prevented from thickness deviation and cracking. In Skogberg '889 and Skogberg '317, a projecting height of the sleeve (19) is increased by rotation of the nut (42), and as a consequence, fails to reduce the projection height. Furthermore, the device of Skogberg '889 and Skogberg '317 fails to disclose a projecting part and a bearing-plate-holding part having a single, one-piece unitary construction as in the claimed invention. Therefore, Applicants respectfully submit that independent claim 1 is patentable over the cited references.

Therefore, for at least the foregoing reasons, the cited references fail to render independent claim 1 obvious. Reconsideration and withdrawal of this rejection are respectfully requested.

Claims 2-4, 6, and 7 depend from and add further limitations to independent claim 1. Thus, claims 2-4, 6, and 7 are deemed to be in condition for allowance for all of the reasons set forth above in connection with independent claim 1.

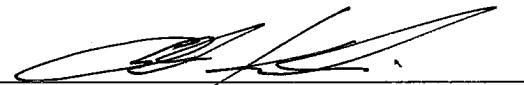
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CONCLUSION

In view of the foregoing amendments and comments, Applicants respectfully request reconsideration of the rejections and allowance of pending claims 1-4, 6, and 7.

Respectfully submitted,
THE WEBB LAW FIRM

By

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